



## **DEPARTMENT OF TRANSPORTATION**

### **Federal Aviation Administration**

#### **14 CFR Part 39**

**[Docket No. FAA-2021-0185; Project Identifier MCAI-2020-00265-R]**

**RIN 2120-AA64**

### **Airworthiness Directives; Bell Textron Canada Limited (Type Certificate Previously Held by Bell Helicopter Textron Canada Limited) Helicopters**

**AGENCY:** Federal Aviation Administration (FAA), DOT.

**ACTION:** Notice of proposed rulemaking (NPRM).

**SUMMARY:** The FAA proposes to adopt a new airworthiness directive (AD) for Bell Textron Canada Limited (type certificate previously held by Bell Helicopter Textron Canada Limited) (Bell) Model 505 helicopters. This proposed AD was prompted by the discovery of a gap between the transmission restraint assembly aft attachment hardware lower washer and mating airframe truss assembly (truss assembly) clevis lower lug. This proposed AD would require inspecting the transmission restraint aft attachment hardware installation for a gap and corrective action depending on the inspection results. The FAA is proposing this AD to address the unsafe condition on these products.

**DATES:** The FAA must receive comments on this proposed AD by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

**ADDRESSES:** You may send comments, using the procedures found in 14 CFR 11.43 and 11.45, by any of the following methods:

- Federal eRulemaking Portal: Go to <https://www.regulations.gov>. Follow the instructions for submitting comments.

- Fax: (202) 493-2251.

- Mail: U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE, Washington, DC 20590.

- Hand Delivery: Deliver to Mail address between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

For service information identified in this NPRM, contact Bell Textron Canada Limited, 12,800 Rue de l’Avenir, Mirabel, Quebec J7J1R4; telephone (450) 437-2862 or (800) 363-8023; fax (450) 433-0272; or at <https://www.bellcustomer.com>. You may view this referenced service information at the FAA, Office of the Regional Counsel, Southwest Region, 10101 Hillwood Pkwy., Room 6N-321, Fort Worth, TX 76177. For information on the availability of this material at the FAA, call (817) 222-5110.

### **Examining the AD Docket**

You may examine the AD docket at <https://www.regulations.gov> by searching for and locating Docket No. FAA-2021-0185; or in person at Docket Operations between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this NPRM, the Transport Canada AD, any comments received, and other information. The street address for Docket Operations is listed above.

**FOR FURTHER INFORMATION CONTACT:** Matt Fuller, AD Program Manager, General Aviation & Rotorcraft Unit, Airworthiness Products Section, Operational Safety Branch, FAA, 10101 Hillwood Pkwy., Fort Worth, TX 76177; telephone (817) 222-5110; email [matthew.fuller@faa.gov](mailto:matthew.fuller@faa.gov).

### **SUPPLEMENTARY INFORMATION:**

#### **Comments Invited**

The FAA invites you to send any written relevant data, views, or arguments about this proposal. Send your comments to an address listed under ADDRESSES. Include “Docket No. FAA-2021-0185; Project Identifier MCAI-2020-00265-R” at the beginning

of your comments. The most helpful comments reference a specific portion of the proposal, explain the reason for any recommended change, and include supporting data. The FAA will consider all comments received by the closing date and may amend this proposal because of those comments.

Except for Confidential Business Information (CBI) as described in the following paragraph, and other information as described in 14 CFR 11.35, the FAA will post all comments received, without change, to <https://www.regulations.gov>, including any personal information you provide. The agency will also post a report summarizing each substantive verbal contact received about this NPRM.

### **Confidential Business Information**

CBI is commercial or financial information that is both customarily and actually treated as private by its owner. Under the Freedom of Information Act (FOIA) (5 U.S.C. 552), CBI is exempt from public disclosure. If your comments responsive to this NPRM contain commercial or financial information that is customarily treated as private, that you actually treat as private, and that is relevant or responsive to this NPRM, it is important that you clearly designate the submitted comments as CBI. Please mark each page of your submission containing CBI as “PROPIN.” The FAA will treat such marked submissions as confidential under the FOIA, and they will not be placed in the public docket of this NPRM. Submissions containing CBI should be sent to Matt Fuller, AD Program Manager, General Aviation & Rotorcraft Unit, Airworthiness Products Section, Operational Safety Branch, FAA, 10101 Hillwood Pkwy., Fort Worth, TX 76177; telephone (817) 222-5110; email [matthew.fuller@faa.gov](mailto:matthew.fuller@faa.gov). Any commentary that the FAA receives which is not specifically designated as CBI will be placed in the public docket for this rulemaking.

## **Background**

Transport Canada, which is the aviation authority for Canada, has issued Canadian AD CF-2019-35, dated October 2, 2019, to correct an unsafe condition for Bell Model 505 helicopters, serial numbers (S/Ns) 65011 and subsequent. Transport Canada advises of a gap between the transmission restraint assembly aft attachment hardware lower washer and the lower lug of the truss assembly clevis identified during quality control activity of a helicopter in final assembly. This gap can occur on the right-hand (RH) and left-hand (LH) sides of the truss assembly clevis. Subsequent investigation revealed that this condition may exist on in-service helicopters. Transport Canada advises that excessive gapping at either of these locations will result in increased stress when fasteners are installed and that the increased stress may result in cracking on the clevis lower lug and subsequent failure of one or both clevis lower lugs. Transport Canada further advises that this condition, if not corrected, could lead to loss of pylon pitch stiffness, excessive pylon pitch motions leading to unknown cyclic inputs to the main rotor, and consequent loss of control of the helicopter.

Accordingly, the Transport Canada AD requires identifying the S/N of the installed truss assembly, and for a helicopter with an affected truss assembly installed, performing an initial inspection of the transmission restraint aft attachment hardware installations for a gap. Depending on the inspection results, the Transport Canada AD requires reducing the torque to the attachment hardware, updating records, and repetitive inspections of the attachment hardware for wear and fretting because of the reduced friction between the mating surfaces; reporting findings to Bell and accomplishing corrective actions specified by Bell; or completing the installation of the attachment hardware and updating records.

## **FAA's Determination**

These helicopters have been approved by the aviation authority of Canada and are approved for operation in the United States. Pursuant to the FAA's bilateral agreement with Canada, Transport Canada, its technical representative, has notified the FAA of the unsafe condition described in its AD. The FAA is proposing this AD after evaluating all known relevant information and determining that an unsafe condition is likely to exist or develop in other helicopters of the same type design.

## **Related Service Information under 1 CFR Part 51**

The FAA reviewed Bell Alert Service Bulletin (ASB) 505-19-12, Revision A, dated July 11, 2019 (505-19-12 Rev A). This service information specifies procedures for an inspection of the restraint hardware installation for the presence of a gap and if needed, reducing the torque to the affected attachment hardware, a repetitive 100-hour inspection of the pitch restraint attachment hardware, and repair of fretting damage on the truss assembly clevis lower lug.

This service information is reasonably available because the interested parties have access to it through their normal course of business or by the means identified in the ADDRESSES section.

## **Other Related Service Information**

The FAA also reviewed Bell ASB 505-19-12, dated June 27, 2019. This revision of the service information contains the same procedures as 505-19-12 Rev A, except 505-19-12 Rev A corrects a torque value.

## **Proposed AD Requirements in this NPRM**

This proposed AD would require within 100 hours time-in-service (TIS):

- Accessing and cleaning the lower attachment hardware securing the restraint to the truss assembly, loosening the torque on each lower nut to measure the tare, and

adding a torque value of 20 inch-lbs to the measured tare of each nut and torquing each nut to this new total value.

- Inspecting for a gap around the circumference between the nut and the washer and between the washer and the truss assembly clevis lower lug mounting surface of the RH and LH sides, and if there is a gap, measuring the gap.

- If there is a gap that is less than 0.003 inch (0.076 mm), installing the hardware using the original torque value of 40 to 58 foot-pounds (55 to 78 Nm) plus tare and completing the installation of the attachment point.

- If there is a gap that is 0.003 inch (0.076 mm) to 0.020 inch (0.508 mm) inclusive, installing the hardware with a decreased torque value limit of 20 to 60 inch-pounds (2.3 to 6.8 Nm) plus tare and completing the installation of the attachment point. This proposed AD would also require updating records for your helicopter to indicate the new torque limits on one or both sides. Thereafter, within 100 hours TIS, and thereafter at intervals not to exceed 100 hours TIS, this proposed AD would require inspecting the assembly for fretting between washer and truss lower lug mounting surface, the security of the pitch restraint attachment hardware to make sure it does not turn freely, and the torque seal lacquer between the nut and the washer to make sure the torque seal is intact on the RH and LH sides. Depending on the inspection results, this proposed AD would require removing the cotter pin from service and removing the nut, washer, and bolt, and inspecting the bolt and the lower surface of the truss assembly clevis lower lug. Depending on these inspection results, this proposed AD would require removing the bolt from service; reworking and cleaning the lower surface of the clevis lower lug and inspecting for any cracks; removing the clevis lower lug from service; or applying primer and final paint. This proposed AD would then require installing the hardware with a decreased torque value limit of 20 to 60 inch-pounds (2.3 to 6.8 Nm Nm) plus tare and completing the installation of the attachment point.

- If there is a gap that is more than 0.020 inch (0.508 mm), removing the nut, washer, and bolt from service and repairing or replacing the truss assembly clevis lower lug in accordance with FAA-approved procedures.

### **Differences Between this Proposed AD and the Transport Canada AD**

The applicability of the Transport Canada AD is by helicopter S/N and requires identifying the S/N of the installed truss assembly P/N SLS-030-056-015 to determine if the helicopter is affected by the unsafe condition, whereas the applicability of this proposed AD is by helicopters with certain serial-numbered truss assembly P/N SLS-030-056-015 installed instead. The compliance time of the initial inspections required by the Transport Canada AD is within 100 hours air time or 6 months, whichever occurs first, whereas this compliance time in this proposed AD is within 100 hours TIS instead. The Transport Canada AD requires reporting information to Bell to obtain certain corrective action, while this AD requires repairing or removing affected parts from service instead.

### **Costs of Compliance**

The FAA estimates that this AD, if adopted as proposed, would affect 87 helicopters of U.S. registry. Labor costs are estimated at \$85 per work-hour. Based on these numbers, the FAA estimates the following costs to comply with this proposed AD.

Measuring tare and inspecting for a gap between the transmission restraint assembly aft attachment hardware lower washer and the truss assembly would take about 1 work-hour for an estimated cost of \$85 per helicopter and \$7,395 for the U.S. fleet. If required, inspecting a pitch restraint attachment point would take about 1 work-hour for an estimated cost of \$85 per attachment point per inspection cycle.

The FAA estimates the following costs to do any necessary repairs or replacements based on the results of the inspections:

- Updating records to indicate the new torque limits would take about 0.25 work-hour for an estimated cost of \$21.

- Replacing a bolt would take a minimal additional amount of time after inspecting and the part would cost about \$50.
- Reworking the lower surface of the clevis lower lug would take about 1 work-hour for an estimated cost of \$85.

### **Authority for This Rulemaking**

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, section 106, describes the authority of the FAA Administrator. Subtitle VII: Aviation Programs, describes in more detail the scope of the Agency's authority.

The FAA is issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701: General requirements. Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

### **Regulatory Findings**

The FAA determined that this proposed AD would not have federalism implications under Executive Order 13132. This proposed AD would not have a substantial direct effect on the States, on the relationship between the national Government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify this proposed regulation:

- (1) Is not a "significant regulatory action" under Executive Order 12866,
- (2) Would not affect intrastate aviation in Alaska, and



(3) Would not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

**List of Subjects in 14 CFR Part 39**

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

**The Proposed Amendment**

Accordingly, under the authority delegated to me by the Administrator, the FAA proposes to amend 14 CFR part 39 as follows:

**PART 39 - AIRWORTHINESS DIRECTIVES**

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

**§ 39.13 [Amended]**

2. The FAA amends § 39.13 by adding the following new airworthiness directive:

**Bell Textron Canada Limited (Type Certificate Previously Held by Bell Helicopter Textron Canada Limited):** Docket No. FAA-2021-0185; Project Identifier MCAI-2020-00265-R.

**(a) Comments Due Date**

The FAA must receive comments on this airworthiness directive (AD) by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

**(b) Affected ADs**

None.

**(c) Applicability**

This AD applies to Bell Textron Canada Limited (type certificate previously held by Bell Helicopter Textron Canada Limited) Model 505 helicopters, certificated in any category, with a truss assembly part number (P/N) SLS-030-056-015 with a serial

number listed in Attachment A of Bell Alert Service Bulletin (ASB) 505-19-12, Revision A, dated July 11, 2019 (ASB 505-19-12 Rev A).

**(d) Subject**

Joint Aircraft System Component (JASC) Code 5310, Fuselage Main, Structure.

**(e) Unsafe Condition**

The FAA is issuing this AD to address a gap between the transmission restraint assembly aft attachment hardware lower washer and the right-hand (RH) and left-hand (LH) mating airframe truss assembly (truss assembly) clevis lower lug. The unsafe condition, if not addressed, could result in increased stress, cracking and failure of one or both of the clevis lower lugs, and subsequent loss of pylon pitch stiffness, excessive pylon pitch motions leading to unknown cyclic inputs to the main rotor, and loss of control of the helicopter.

**(f) Compliance**

Comply with this AD within the compliance times specified, unless already done.

**(g) Required Actions**

Within 100 hours time-in-service (TIS) after the effective date of this AD, access the transmission restraint assembly and:

(1) Remove the safety pin at each lower nut location of the aft bolts securing the restraint to the truss assembly. Use solvent (C-304) to remove the corrosion preventive compound on each nut and washer located under the RH and LH truss assembly clevis lower lug.

(2) Loosen the torque on each lower nut while holding the bolt with a wrench until the washer turns freely while sitting on top of the nut.

(3) Measure and record the tare of each nut. For purposes of this AD, tare is the torque required to overcome the internal friction between a self-locking nut and bolt as the nut is being turned on the bolt, but before the nut contacts the washer. Add a torque

value of 20 inch-lbs to the measured tare of each nut and torque each nut to this new total value.

(4) Inspect for a gap around the circumference between the nut and the washer and between the washer and the truss assembly clevis lower lug mounting surface of the RH and LH sides as illustrated in Figure 1 of ASB 505-19-12 Rev A (2 sheets). If there is a gap, measure the gap.

(i) If there is a gap that is less than 0.003 inch (0.076 mm), before further flight, install the hardware using the original torque value of 40 to 58 foot-pounds (55 to 78 Nm) plus tare. Do not exceed the limit specified in this paragraph plus tare. Install a cotter pin and apply corrosion preventive compound (C-101) and torque seal lacquer (C-049) between the nut, washer, and lower surface of the truss assembly clevis.

(ii) If there is a gap that is 0.003 inch (0.076 mm) to 0.020 inch (0.508 mm) inclusive, before further flight, install the hardware with a decreased torque value limit of 20 to 60 inch-pounds (2.3 to 6.8 Nm) plus tare. Do not exceed the limit specified in this paragraph plus tare. Install a cotter pin. You may install an additional washer P/N NAS1149E0863P before torqueing and installing the cotter pin while not exceeding the maximum limit of 60 inch-lbs plus tare. Apply corrosion preventive compound (C-101) and torque seal lacquer (C-049) between the nut, washer, and lower surface of the truss assembly clevis. Update records for your helicopter to indicate the new torque limits on one or both sides.

(A) Within 100 hours TIS after performing paragraph (g)(4)(ii) of this AD, and thereafter at intervals not to exceed 100 hours TIS, inspect the assembly for fretting between the washer and truss lower lug mounting surface, inspect the security of the pitch restraint attachment hardware to make sure it does not turn freely, and inspect the torque seal lacquer between the nut and the washer to make sure the torque seal is intact on the RH and LH sides.

(B) If there is any fretting, the pitch restraint attachment hardware turns freely, or a torque seal is broken, remove the cotter pin from service and remove the nut, washer, and bolt. Inspect the bolt for damage and the lower surface of the truss assembly clevis lower lug for fretting damage.

(1) If the bolt has damage, remove the bolt from service.

(2) If the lower surface of the truss assembly clevis lower lug has fretting damage within allowable repair limits, use 400 grit sandpaper (C-423) and rework fretting damage smooth with adjacent surfaces, while removing minimum material. Do not exceed .010 inch (0.254 mm) deep total cumulative amount of material to be removed from the clevis's lower lugs compared to adjacent original surfaces after rework. Clean with acetone (C-316) and let dry. With the acetone dry, visually inspect the clevis lower lug for any cracks.

(i) If there is a crack within allowable repair limits, repair in accordance with FAA-approved procedures. If there is a crack that meets or exceeds allowable repair limits, remove the truss assembly clevis lower lug from service.

(ii) If there is not a crack, apply primer (C-204) to the reworked surface and let dry. With the primer dry, apply final paint (polyurethane topcoat color No. 16492) to the reworked surface.

(3) If the lower surface of the truss assembly clevis lower lug has fretting damage that exceeds allowable repair limits, before further flight, remove the truss assembly clevis lower lug from service.

(C) Install a nut, washer, and bolt with a decreased torque value limit of 20 to 60 inch-pounds (2.3 to 6.8 Nm) plus tare. Do not exceed the limit specified in this paragraph plus tare. Install a cotter pin. You may install an additional washer P/N NAS1149E0863P before torquing and installing the cotter pin while not exceeding the maximum limit of

60 inch-lbs plus tare. Apply corrosion preventive compound (C-101) and torque seal lacquer (C-049) between the nut, washer, and lower surface of the truss assembly clevis.

(iii) If there is a gap that is more than more than 0.020 inch (0.508 mm), before further flight, remove the nut, washer, and bolt from service and repair or replace the truss assembly clevis lower lug in accordance with FAA-approved procedures.

**(h) Credit for Previous Actions**

You may take credit for the first instance of the actions that are required by paragraphs (g)(1) through (4), except not paragraphs (g)(4)(i), (g)(4)(ii)(A) through (C), or (g)(4)(iii), of this AD if you completed the Accomplishment Instructions, Part I of Bell ASB 505-19-12, dated June 27, 2019, before the effective date of this AD.

**(i) Alternative Methods of Compliance (AMOCs)**

(1) The Manager, International Validation Branch, FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. In accordance with 14 CFR 39.19, send your request to your principal inspector or local Flight Standards District Office, as appropriate. If sending information directly to the manager of the International Validation Branch, send it to the attention of the person identified in paragraph (j)(1) of this AD. Information may be emailed to: 9-AVS-AIR-730-AMOC@faa.gov.

(2) Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the local flight standards district office/certificate holding district office.

**(j) Related Information**

(1) For more information about this AD, contact Matt Fuller, AD Program Manager, General Aviation & Rotorcraft Unit, Airworthiness Products Section, Operational Safety Branch, FAA, 10101 Hillwood Pkwy., Fort Worth, TX 76177; telephone (817) 222-5110; email matthew.fuller@faa.gov.

(2) For service information identified in this AD, contact Bell Textron Canada Limited, 12,800 Rue de l'Avenir, Mirabel, Quebec J7J1R4; telephone (450) 437-2862 or (800) 363-8023; fax (450) 433-0272; or at <https://www.bellcustomer.com>. You may view the referenced service information at the FAA, Office of the Regional Counsel, Southwest Region, 10101 Hillwood Pkwy., Room 6N-321, Fort Worth, TX 76177. For information on the availability of this material at the FAA, call (817) 222-5110.

(3) The subject of this AD is addressed in Transport Canada AD CF-2019-35, dated October 2, 2019. You may examine the Transport Canada AD on the Internet at <https://www.regulations.gov> in the AD Docket.

Issued on March 11, 2021.

Lance T. Gant, Director,  
Compliance & Airworthiness Division,  
Aircraft Certification Service.

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